CHAPTER I

AIRDROP INFORMATION

1-1. Responsibilities

Personnel responsible for loading Army rigged platform loads into aircraft and installing and operating airdrop systems are given below.

a. US Air Force Aircraft. Air Force personnel are responsible for loading the Army rigged platform loads into the aircraft and for installing and operating the airdrop system. However, under the supervision of Air Force personnel, Army personnel may load the platforms and install the airdrop system.

b. Other Aircraft. When aircraft other than US Air Force aircraft are used, Army personnel may be responsible for loading Army rigged platform loads into the aircraft and for installing and operating the airdrop systems.

1-2. Types and Method of Airdrop

As used in this manual, airdrop is the air-to-ground delivery of platform loads from an aircraft in flight. Airdrop is designed to supplement the usual surface methods of delivering supplies and equipment to forces in the field.

a. Types of airdrop. There are two types of airdrop used to deliver platform loads.

(1) **Low-Velocity Airdrop.** A low-velocity airdrop delivers platform loads from an aircraft at various altitudes. Cargo parachutes are used to slow the descent of the loads to ensure minimum landing shock. The type and number of cargo parachutes can vary as shown in Table 1-1. Due to differing deployment characteristics, parachutes of different types will not be mixed on the same load. Loads with different type parachutes and loads with different quantities of the same type parachute may be airdropped from the same aircraft or element provided the following conditions are met:

(a) Airdrop altitude for the aircraft or element will be determined by the type and number of parachutes on the load requiring the highest airdrop altitude.

(b) Aircraft or elements with lower airdrop altitudes will drop before aircraft or elements with higher airdrop altitudes.

(c) The transported force accepts strike report responsibility for loads other than the first platform to exit the aircraft or element lead for formation airdrops.

Table 1-1. Type and number of parachutes for low-velocity airdrop

MINIMUM DROP ALTITUDE (FEET AGL)	PARACHUTES
	G-11B
700	1
750	2 to 4
	G-11C
1,150	5
1,200	6 to 7
1,300	8
	G-12E
550	2 to 3 (Not for Army Platform Loads)

CAUTION

Drop altitudes reflect MINIMUM drop altitudes.

(2) LAPE Airdrop. A LAPE airdrop delivers platform loads from a C-130 aircraft flying between 5 to 10 feet (wheel height) above the ground as shown in Figure 1-1. Only aircraft cargo extraction parachutes are used with these loads.

b. Method of Airdrop. The extraction method is used for platform loads delivered by both types of airdrop. This method uses a cargo extraction parachute to pull the platform load from the cargo compartment of the aircraft.

1-3. Accompanying Loads

Accompanying loads are items of supplies and equipment that may be added to a certain primary load as specified in the specific rigging manual for that load. Each airdrop manual states whether an accompanying load is authorized and lists the restrictions for that particular load. The following restrictions apply to all accompanying loads.

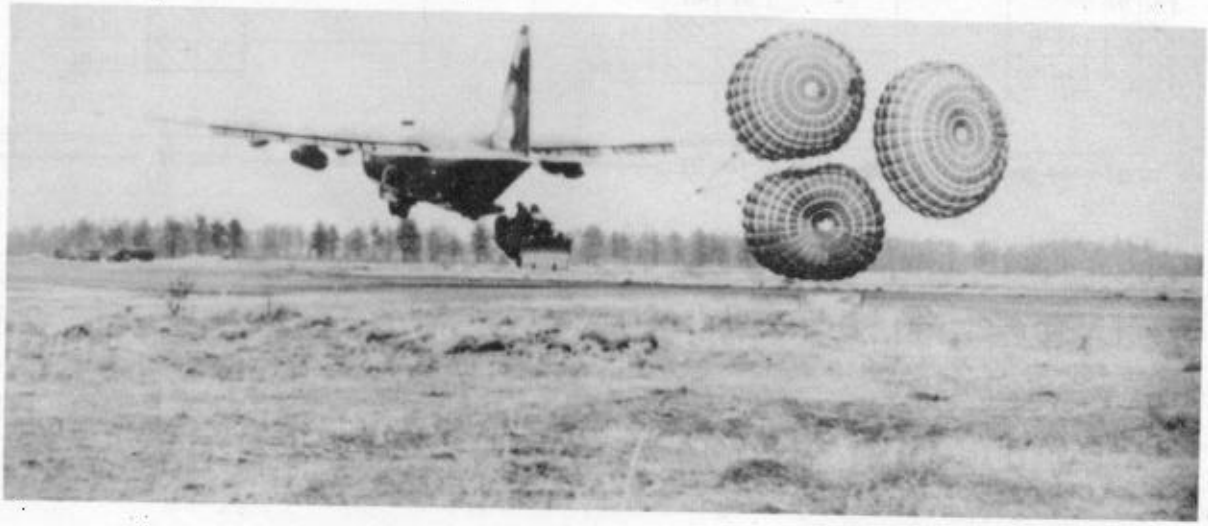
a. The accompanying load must be positioned so that--

(1) The primary load will not hit or crush it on ground impact.

(2) It will not interfere with the suspension slings.

b. The accompanying load must not cause the--

(1) Height of the rigged load to exceed the height limitations of the aircraft used.



- Drops are made from a C-130 aircraft flying with its wheels between 5 to10 feet above the ground.
- The number of 28-foot cargo extraction parachutes used depends on the rigged weight of the load.
- The 8-foot platform **MUST NOT** be used for LAPE airdrop.
- Single platforms and two or three platforms in tandem may be dropped.
- Platform loads weighing less than 6,700 pounds may only be dropped singly when authorized in the specific rigging manual. The following loads are authorized to be dropped as a single drop:

FM 10-510/TO 13C7-2-451	1/4-ton trucks
FM 10-512/TO 13C7-1-8	2.75-inch rockets
FM 10-513/TO 13C7-3-51	3/4-ton cargo trailers
FM 10-535/TO 13C7-40-11	5-kilowatt generator set
FM 10-537/TO 13C7-1-19	FARE

Figure 1-1. LAPE airdrop

(2) Weight of the rigged load to exceed the maximum allowable weight prescribed in the specific rigging manual.

(3) CB of the rigged load to move outside the limitations shown in Figure 1-2.

(4) Hang angle of the suspended rigged load to exceed 1 inch per linear foot of platform length.

CAUTION

The accompanying load must be lashed to meet the same restraint requirements as the primary load.

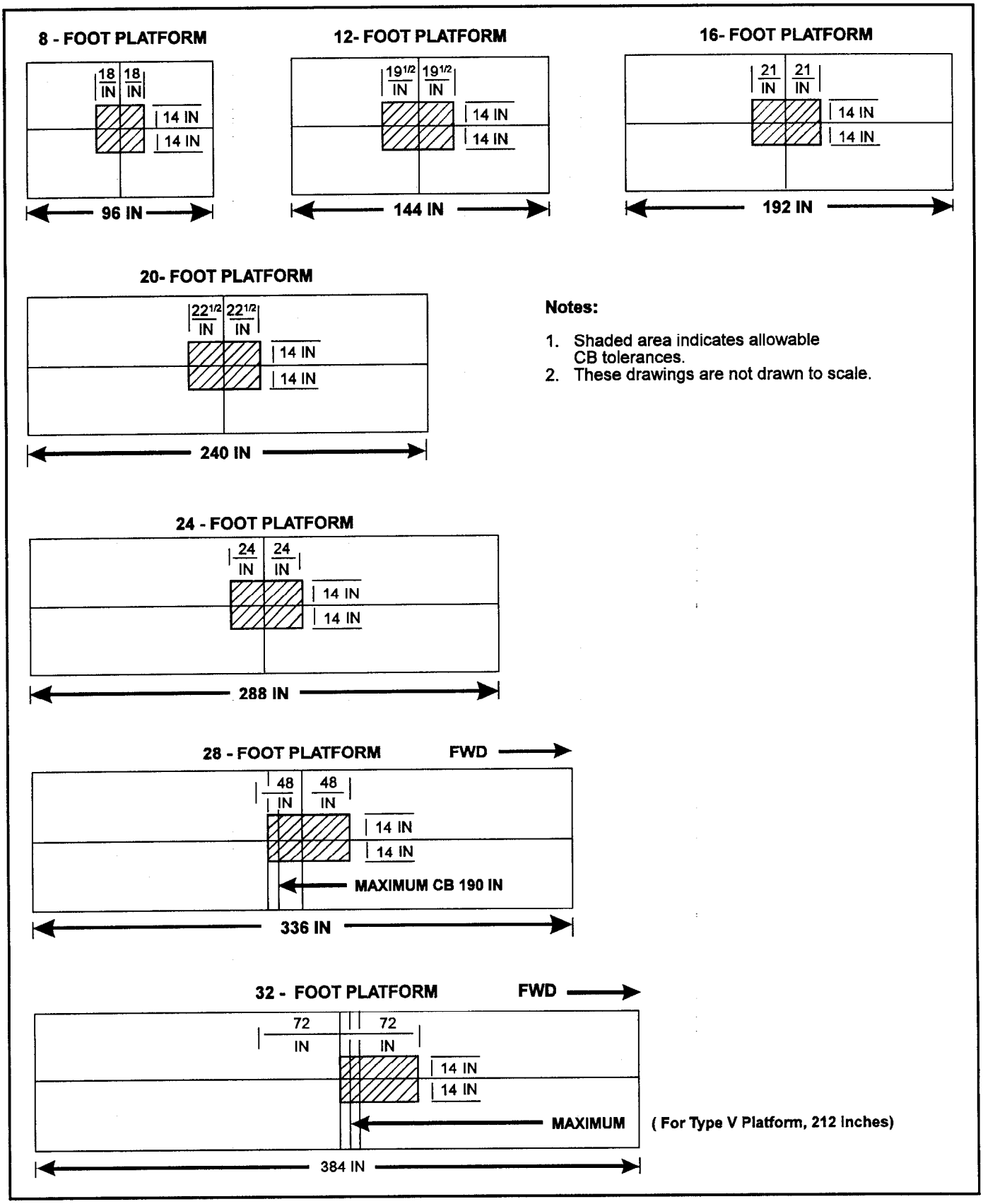


Figure 1-2. CB limits for airdrop platforms

Table 1-2. CB and forward profile limits for airdrop platforms

PLATFORM LENGTH (FEET)	MINIMUM (INCHES)	MAXIMUM (INCHES)
8	30	66
12	52 1/2	91 1/2
16	75	117
20	97 1/2	142 1/2
24	120	168
28 (Note 2)	120	190
32 (Note 2)	178	212

Notes: 1. Distances are measured in inches from the front edge of the platform.

2. These minimum figures are for non-awads and non-armored C-130 aircraft.

FORWARD PROFILE LIMITS

DISTANCE FORWARD OF C/B (INCHES)	MAXIMUM HEIGHT (INCHES)	DISTANCE FORWARD OF C/B (INCHES)	MAXIMUM HEIGHT (INCHES)
0 to 45	100	153 to155	82
46 to 75	99	156 to 160	81
76 to 87	98	161 to 162	80
88 to 93	97	163 to 165	79
94 to 100	96	166 to 168	78
101 to 107	95	169 to 170	77
108 to 113	94	171 to 172	76
114 to 117	93	173 to 174	75
118 to 122	92	175 to 177	74
123 to 124	91	178 to 179	73
125 to 128	90	180 to 181	72
129 to 133	89	182 to 183	71
134 to 138	88	184 to 186	70
139 to 141	87	187 to 188	69
142 to 144	86	189 to 190	68
145 to 146	85	191 to 192	67
147 to 150	84	193 to 195	66
151 to 152	83	196 to 197	65

Table 1-2. CB and forward profile limits for airdrop platforms (continued)

FORWARD PROFILE LIMITS

DISTANCE FORWARD OF C/B (INCHES)	MAXIMUM HEIGHT (INCHES)
198 to 199	64
200 to 201	63
202 to 203	62
204 to 205	61
206 to 207	60
208 to 209	59
210	58
211 to 212	57
213 to 214	56
215 to 217	55
218 to 219	54
220	53

1-4. Items and Loads Dropped in Cold Climates

Some items to be dropped may have been modified for use in cold climates by the installation of extra equipment. Special rigging procedures may be needed when the drop item has been so modified. When loads are to be dropped in cold climates, all excess webbing of suspension slings and tie-down straps must be folded and tied with type I, 1/4-inch cotton webbing.

1-5. Safety Precautions

Safety precautions MUST be closely followed when airdrop platform loads are rigged. Failure to follow the precautions could result in serious injury to the rigger or damage to the drop item or aircraft. The following safety precautions shall be taken by the rigger:

a. Make sure that when lifting heavy items, the lifting device has a rated lifting capacity that exceeds the weight of the item to be lifted.

b. Be sure that items being lifted are secured to the lifting device.

c. Avoid working under equipment suspended above an airdrop platform unless absolutely necessary.

d. Cover all wet cell batteries in service with plastic or nonflammable material.

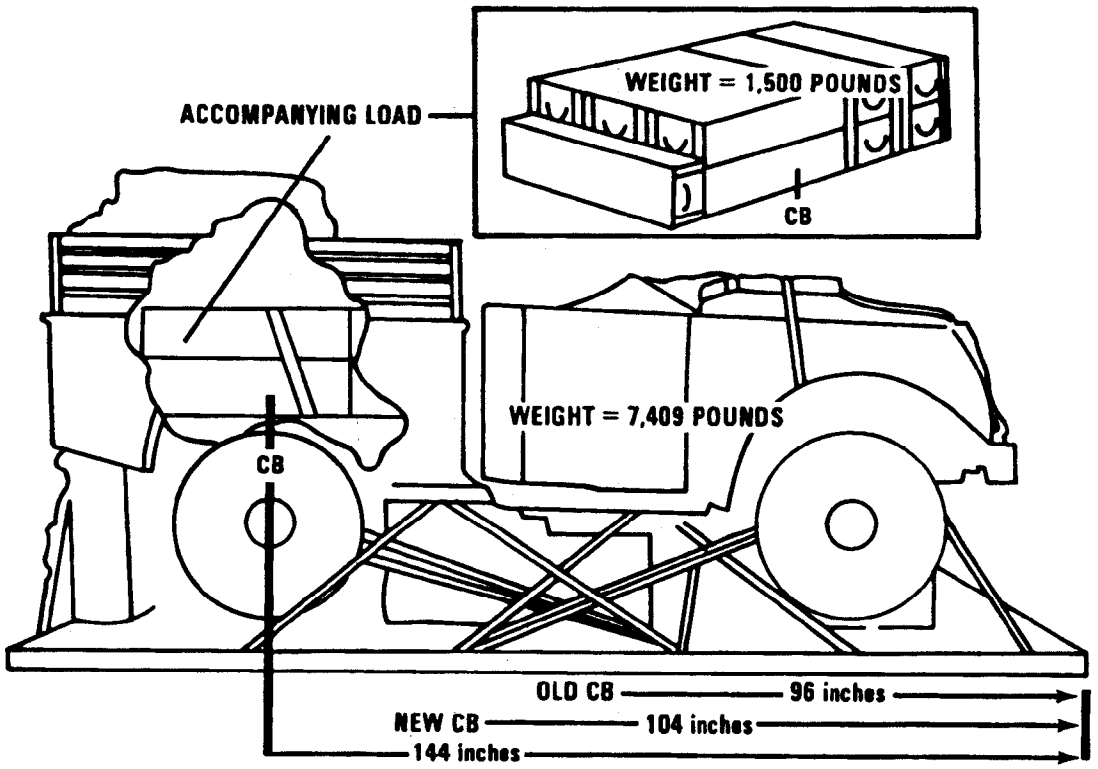
e. Check fuel tanks of vehicles to ensure that they are not more than 3/4 full. Check fuel tanks of small engines to make sure they are drained. Check fuel cans to make sure they are performance-oriented packaging approved. When stowing fuel cans, use cellulose wadding or other suitable material to prevent metal-to-metal contact.

f. Package, mark, and label hazardous materials according to AFR 71-4/TM 38-250.

CAUTION
Only ammunition listed in FM 10-553/TO 13C7-18-41 may be airdropped.

1-6. Center of Balance

The CB of an airdrop platform load, based on the total rigged weight, is given in the rigging manual for a particular item. If the load varies from the one given in a particular manual, the CB must be recomputed using the procedures shown in Figure 1-3.



1. Computing for added weight:

$$\frac{(WT \times CB) + (wt \times cb)}{WT + wt} = \text{new CB}$$

Example:

WT 7,409 lb wt 1,500 lb
CB 96 in cb 144 in

$$\frac{(7{,}409 \times 96) + (1{,}500 \times 144)}{7{,}409 + 1{,}500} =$$

$$\frac{711{,}264 + 216{,}000}{8{,}909} =$$

927,264 ÷ 8,909 = 104 in new CB

2. Computing for decreased weight:

$$\frac{(WT \times CB) - (wt \times cb)}{WT - wt} = \text{new CB}$$

Example:

WT 8,909 lb wt 1,500 lb
CB 104 in cb 144 in

$$\frac{(8{,}909 \times 104) - (1{,}500 \times 144)}{8{,}909 - 1{,}500} =$$

$$\frac{926{,}536 - 216{,}000}{7{,}409} =$$

710,536 ÷ 7,409 = 95 1/2 in new CB

LEGEND

WT The rigged weight of the load given in the rigging manual.
CB The CB of the load given in the rigging manual.
wt The weight of the added accommanying load.
cb The CB of the added accompanying load, measured from the front of the platform.

Figure 1-3. Schematic drawing showing weights and CB of rigged item and accompanying load

1-7. Knots

Some of the knots used for rigging platform loads are shown in Figure 1-4.

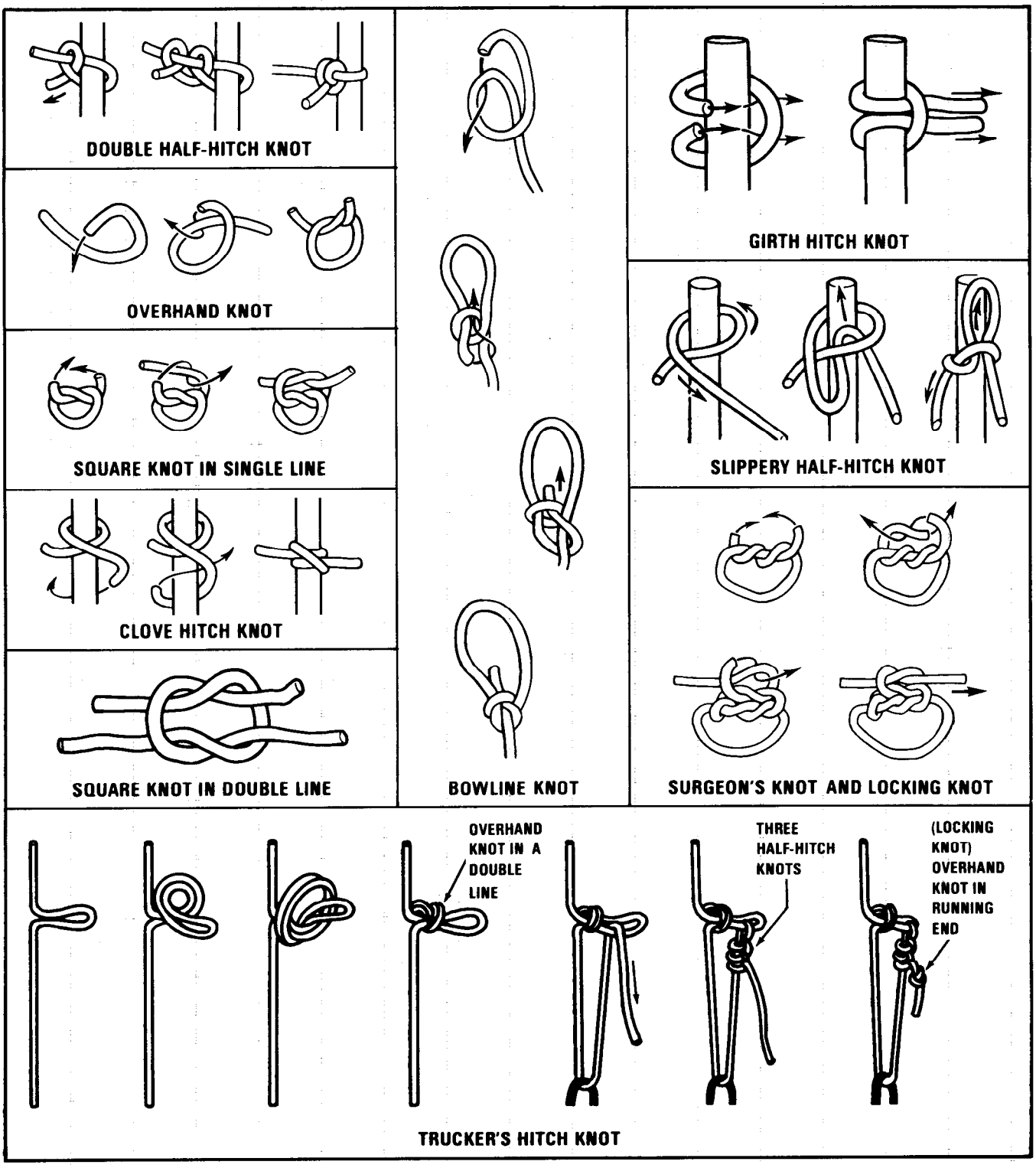


Figure 1-4. Knots used during rigging

1-8. Emergency Aft Restraint

All low-velocity airdrop platform loads, platform- or item-extracted, will have provisions for in-aircraft restraint in the event a load fails to release or extract. Emergency aft restraint provisions as shown in Figure 1-5 will be attached to the platform for platform-extracted loads and to the item for item-extracted loads.

1-9. Maximum Rigged Weight

The weight cited in the rigged load data for each specific load is typical for the load as shown. Some amount of overweight is allowed as long as load dimensions, rigging and extraction components, and rigging procedures are not changed.

Note: When a maximum allowable rigged weight is specified in the rigged load data, this weight is the absolute maximum and will not be exceeded.

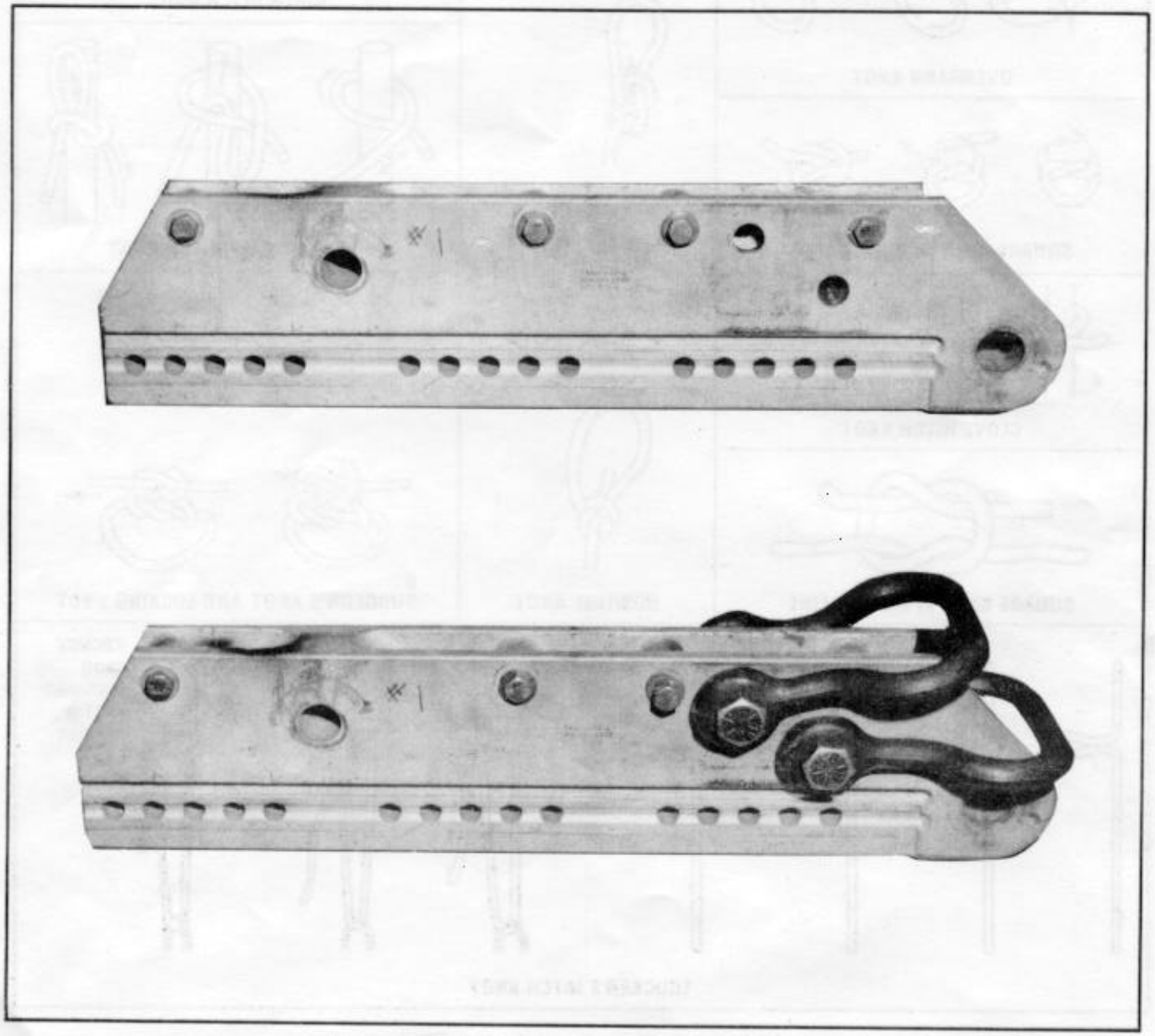


Figure 1-5. Emergency aft restraint provisions